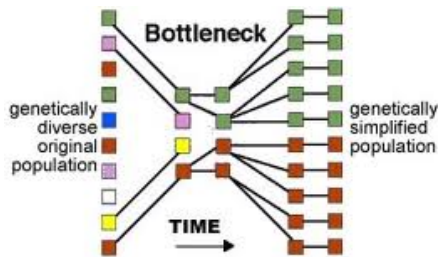


Bottlenecks and Founder Effects

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Genetic Bottleneck

When a particular number of people or species can be killed or prevented from reproduction, this event is normally known as bottleneck. Bottle neck is generally called a population bottleneck or a genetic bottleneck. It is an important [evolution](#) event.



A small group of population get separated from the main group of population is known as founder's effect.

It is slightly different from genetic bottleneck.



Bottle necks can:

- Increase [genetic drift](#)
- Reduce genetic variation
- Reduce the adaptability of new selective pressures
- Increase [inbreeding](#)
- Reduce population dispersal
- Increase genetic homogeneity.

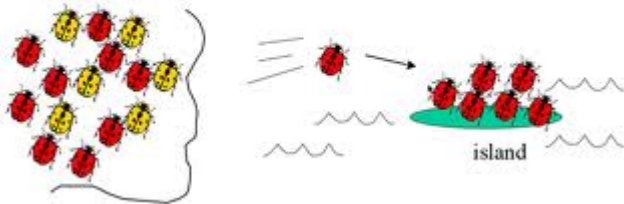
Genetic drift causes huge losses in the variation of genes in a population that is very small in size. If one generation's size gets reduced, population bottlenecks will definitely occur. To reduce the genetic variations, genetic drift happens very quickly which result in the bottlenecks.

We can conclude that the reduction in genetic variation because population does not have an opportunity to adapt to new selection pressures like climatic change or a natural shift with the resources available will cause a bottleneck.



Example: [Northern elephant seals](#). They have reduced genetic variation. In 1980 humans hunted the elephant seals and reduced their population to just 20 in numbers. Then the population has been rebounded to about 30,000. But because of the bottleneck effect they still have the less genetic variations.

- founder effect: a few individuals from a population start a new population with a different allele frequency than the original population



Founder effects

The founder effect occurs when a new colony has been created by a very few members of the original population. This is because of the less gene variation from the original population. The absence of random sample of the genes of the main population could also be the reason.

Founder Principle

[Founder Principle](#) occurs when a few people have many descendants surviving after a number of generations. The result for a population is often high frequencies of specific genetic traits inherited from the few [common ancestors](#) who first had them.

Example:

16-18,000 Old Order Amish people of Pennsylvania are descended from a few dozen individuals belonging to Pennsylvania during the early 1700's. Over the last 40 years, 61 babies with microcephaly were born to 23 Amish families. All are descendants of a single Amish couple nine generations ago. They were the founders of the population with the genes for [microcephaly](#) an extremely rare fatal genetic disorder.

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Reference Links:

- http://en.wikipedia.org/wiki/Population_bottleneck
- http://en.wikipedia.org/wiki/Founder_effect
- http://en.wikipedia.org/wiki/Northern_Elephant_Seal

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